Ουρανοδειξις.

Cœlorum declaratio.

AN Ephemeris

For the yeer of Christ, 1653.

Being the first after Bissextile or Leap-yeer: and from the creation according to *Kepler*, 5646. but according to *Lansberg*, 5613.

Containing the Heavens declaration for the yeer MDLLLIII. shewing the Motions and chiefest Aspects of the Planets, a description of the four quarters of the yeer, the Suns ingresse into the four cardinal points and of the Eclipses.

Calculated for the Meridian of the two ancient Port-towns of *Sandwich*, lat. 51. degr. 18. min. *Dover* latitude 51. degr. 10. min.

Whereunto is added an answer to a Letter sent from a friend to the Author for the benefit of such as study Geometry.

By HENRY HARFLET Gent. Student in the Mathem.

Veritas——

Non timet Mauri jaculi, nec arcus.

LONDON, Printed by T. R. & E. M. for the Company of STATIONERS. 1653.

The common Notes and movable Feasts according to the

English accoũt 1653.			Romã account 1653.
	1	The Golden number.	1
	10	The circle of the Sun.	10
	11	The Epact.	1
	26	The Dominical Letter	E
February	20	Shrove Sunday	23 February.
April	10	Easter day	13 Aprill
May	15	Rogation Sunday	18 May.
May	19	Ascension day	22 May.
May	29	Whitsunday	1 June.
November	27	Advent-sunday	30 November.

BRITISH MUSEUM

The Anatomy of mans body, as the parts thereof are by Astrologers attributed unto the 12 signes of the Zodiack.

♈ Head and face.

♉ Neck and throat.

♋ Breast, stomach & ribs

♍ Bowels and belly.

♏ Secret members.

♑ Knees.

♊ Armes and shoulders

♌ Heart and back.

♎ Reins and loynes.

♐ Thighes.

♒ Legges.

♓ The Feet.

Duke *William* conquered *England*	587
The invention of Guns	275
The invention of Printing	213
The infectious ſweating ſickneſs	96
The Great Maſſacre in *France*	92
Pauls ſteeple was ſet on fire	92
The fiery Apparition in the heavens	79
The generall Earthquake in *England*	73
The great Snow	73
The Spaniſh fleet, 1588	65
The Camp at *Tilbury* in *Eſſex*	64
The Gunpowder Treaſon, *November* 5.	48
The Comet or blazing ſtar, from *November* 18. to *December* 16. 1618.	35
The great Plague in *London*. 1625	28
The laſt great Earthquake in *England*	27
The Duke of *Buckingham* murthered	25
The third part of *London* Bridge burnt	21
This preſent Parliament began *Novemb.* 3. 1640.	13
The Earl of *Strafford* beheaded on Tower hill *May* 12. 1641.	12
The Iriſh Rebellion began *October* 23. 1641.	12
King *Charles* went from his Parliament, *Janu* 10.	12
King *Charles* ſet up his Standard at *Nottingham*	12
The fight at *Kenton*, *October* 22. 1642.	11
The fight at *Brainford*, *Novemb.* 12. 1642.	11
Cheapſide Croſſe demoliſhed, *May* 2. 1643.	10
The taking of the Scots Covenant in *England*	10
The fight at *Newbury*	9
The great fight at *York*	9
The Biſhop of *Canterbury* was beheaded *Janu.* 10. 1644.	9
The fight at *Naſeby*, *June* 4. 1645.	8
King *Charles* was beheaded, *January* 30. 1649.	4
Duke *Hambleton*, Earle of *Holland* and Lord *Capel* was beheaded, *March* 9. 1649.	4

Since

The Tide Table.

Names of the Havens.	H. M.	Points of the compas
Quinbrough, Southampton, Portsmouth, Ile of Wight, Dunkerk half tide.	0 0	S and N
Rocheſter, Aberden, Redban.	0 45	S by E
Graveſend, Downes, Rumney, Tenet.	1 30	S S W
Dundee, St. Andrews, Lisborn,	2 15	S W by S
London, Tinmouth, Amſterdam, Hartlep.	3 0	S W
Barwick, Oſtend, Fluſhing, Burdeaux.	3 45	S W by W
Scarborough quitide, Cork Calice creek.	4 30	W S W
Falmouth, Dartmouth, Newcaſtle, Lizard.	5 15	W by S
Plimouth, Weymouth, Hull, Lin, Antwerp	6 0	E and W

To theſe adde the time of the Moons ſouthing, but for theſe following, ſubſtract from the time of the Moons ſouthing.

	H. M.	Points of compaſſe
Briſtol, at the ſtart, Foulneſſe.	5 15	E by S
Milford, Bridgwater, Landſend, Waterford	4 30	E S E
Portland, Harflew, Hague, Dublin.	3 45	S E by E
Poole, Man Ile St. Hellens, Dunbar.	3 0	S E
Needles, Oxford, Sou. and Nor. foreland,	2 15	S E by S
Sandwich, Dover, Yarmouth, Harwich. Calice roade.	1 30	S S E
Ry, Winchelſea Gorend.	0 45	S by E

Uſe by Example.

Janu. 1. When highwater at *London*. In the blank page of the *Ephemeris*, I finde the Moon South at 22 min. paſt 10 afternoon, to which I adde 3 hours which ſtands above over *London*, and it makes 13 hou. 22 min. that is *Jan.* 2 day 2 min paſt 1 a clock in the morning. But for *Sandwich* that day ſubſtract 1 heur 30 min. from 10 ho. 22 min remaines 52 min. paſt 8 a clock at night, *Jan.* 1. and ſo of the reſt.

To the READER,

Especially to those inhabiting or residing neer the Town and Port of *SANDWICH.*

I Intended the last yeere never to have given againe a salutation in any προλόγιον, or preambulatory Epistle, had I not found that some *lictores* are become *lictores* some, (I say not all) readers read themselves *raylers*, at least *carpers*; speaking ill of that they understand not; finding fault where no fault is; or at least making a fault, yet cannot mend it: Some are κόλακες, who commend all in the Authors presence, and call him fool in his absence. Some again are κόρακες, *sicut corvi crocitabunt*, like Ravens, they will pick out the Authors eyes, his good name, liking nothing that is written, and make him odious to ignorants: which puts me in minde of that saying, Ῥᾷον μωμήσασθαι, ἢ μιμήσασθαι. It is easier to dislike, then to do the like, to traduce, then to imitate. *Ignorance* leads them to

to the one, but their *Genius* never enabled them to the other. Again, ſome Writers write themſelves Ἀσεφόιλοι, others Ἀσεβόλογοι, ſome Ἀσεβόνομοι; when as their Readers read them Ἀρχόλογοι. I muſt confeſſe ſome general invectives may be tolerable, and go blameleſſe, when as particulars may make Art it ſelf odious to ignorants, and the Writer and his work hateful to ſome more knowing and otherwiſe learned. What if general Prognoſtications do not work generally, or particulars particularly, may the fault lie altogether in the Artiſt or Writer? and what if Aſtronomical calculations do not agree, ſome drawn from one Table, others from others, &c. muſt therefore the Calculator be accuſed for erronious, &c. I could now begin to inſtance in ſome things, but I forbear, and deſire ſome of you to mark well what I have written after the calculation of the Eclipſe in the Appendix to this enſuing *Ephemeris*; —— Now

Reader, If in what I have written you think I erre, mildly informe me, and I ſhall reforme it, if an errour either in opinion or practiſes, (for *Quando nobis offeruntur meliora, ſi concedamus, non vincimur, ſed inſtruimur*, 'tis the ſaying of *Gregory*; *If we yeeld to a better judgement, when preſented; we are not overcome, but inſtructed*; We are no loſers, but gainers by it, if we loſe opinion, I am ſure we gaine knowledge, and a more ſolid judgement) but if I can finde

finde it no errour, I will endeavour plainly to informe thee in the truth, that thou mayeſt reforme thy erroneous judgement, then out of a conceited errour I may draw a certataine truth. Courteous Reader, do this and thou ſhalt ever oblige me to remaine and be

A faithful endeavourer to

beneſit thee in any point of Art

according to my ability.

HENRY HARFLETE

COurteous Reader, there is a new Book of Arithmetique lately publiſhed by Mr. *Robert Gager* Gent. Wherein all the Rules of Vulgar Arithmetique are performed by Decimals without the uſe of Fractions. The Book is alſo furniſhed with variety of Rules and Examples of the valuation of Leaſes, and Annuities, and alſo of Intereſt both ſimple and compound, with divers other things neceſſary thereunto. This Book is to be ſold by *Humphrey Moſely* at the Princes armes in Saint *Pauls* Church-yard, *London.*

Full Moon, 3 day, 24 min. past 5 at night.
Last quarter, 11 day, half an hour past 7 at night.
New Moon, 19 day, 10 min. past 6 in the morning.
First quarter, 25 day, 20 min. past 11 at night.

1	a	New yeers	21	♍	53	24	♊	30	11	d	✶☿☿ 6 mor.
2	b	Sun rise 8 1	22		54	8	♋	0	12	e	△♄☿ 10 bef.n
3	c	♄ ☊ 10 44	23		55	21		13	13	f	☌♃☾ 6 nigh.
4	d	♃ ♍ 24 42	24		56	4	♌	13	14	g	☌♃☉ 5 mor.
5	e	♂ ♏ 4 3	25		58	16		52	15	a	☌♄☾ 1 mor.
6	f	Epiphany	26		59	29		15	16	b	
7	g	☿ ♐ 16 54	28		0	11	♍	23	17	c	
8	a	☾ with ♍	29		1	23		19	18	d	△♃☾ 5 aft.n
9	b	1 after Epiph	♌		2	5	♎	8	19	e	☾ Apogæo
10	c	☿ ♒ 17 56	♌		3	16		50	20	f	
11	d	☉ rise 7 48	2		4	28		40	21	g	
12	e		3		5	10	♍	36	22	a	☌♂☾ 6 mor.
13	f	Hillary	4		7	22		46	23	b	☿ begins to
14	g	☿ ♐ 25 15	5		8	5	♐	13	24	c	be retrograd.
15	a		6		9	18		4	25	d	
16	b	2 after Epiph	7		10	1	♍	20	26	e	☌☿☾□♄♂
17	c	☿ ♒ 15 45	8		11	15		2	27	f	
18	d		9		12	29		5	28	g	☌♄☉ 7
19	e	♀ ♍ 1 15	10		13	13	♒	28	29	a	□♂☾ 8 mor.
20	f	Oct. ab. Hill.	11		14	28		0	30	b	☌☉☿ 1 mor.
21	g	Sun set 4 28	12		15	12	♓	42	31	c	□♂☉□♂☿
22	a	☾ peregæo	13		15	27		19	Feb	d	All the plan.
23	b	3 aft. Epiph.	14		16	11	♈	50	2	e	direct but ♄
24	c	Paul begin.	15		17	26		9	3	f	& ☿ retro.
25	d	Conver. Paul	16		18	10	♉	15	4	g	☌♂☾ 7 night
26	e	♂ ♏ 14 28	17		18	24		6	5	a	
27	f	Quind. Hill.	18		16	7	♊	46	6	b	
28	g	♃ ♒ 0 18	19		20	21		11	7	c	
29	a	♄ ☊ 8 38	20		21	4	♋	23	8	d	
30	b	4 after Ediph	21		22	17		26	9	e	
31	c	♂ ♍ 15 47	22		22	0	☊	16	10	f	☌♃☿☾

1, 2, 3, 4, 5. dayes, windes with ſome moiſture of ſnow or raine, yet not ſo cold for the ſeaſon of the yeer, and ſo continuing for the moſt part all this moneth of *January*.

1	10	A 22	Moon South at *Sandwich*.
2	11	17	
3	12	M 12	
4	0	12	
5	1	4	
6	1	50	
7	2	35	
8	3	20	
9	4	1	
10	4	42	
11	5	20	
12	5	51	
13	6	40	
14	7	32	
15	8	24	
16	9	24	
17	10	16	
18	11	22	
19	0	A 16	
20	1	12	
21	2	0	
22	2	52	
23	3	40	
24	4	31	
25	5	24	
26	6	20	
27	7	24	
28	7	48	
29	8	40	
30	9	24	
31	10	31	

Full Moon, 2 day, 6 min. past 10 before noone.
Last quarter, 10 day, at 3 afternoone.
New Moon 17 day, 15 min. past 5 afternoone.
First quarter, 24 day, 50 min. past 8 morning.

1	D	☿ ♒ 2 39	23	♒ 23	12	♌ 54	11	g	✶ ♂ ☿		
2	e		24	24	25	18	12	a			
3	f	Craft. Purif.	25	24	7	♍ 30	13	b	☌ ♃ ☿		
4	g	☾ with ☉	26	25	19	32	14	c	△ ☿ ☾		
5	a	♂ 18 55 ♏	27	25	1	♎ 26	15	D	☾ Apogæo.		
6	b	♃ ♓ 2 20	28	26	13	18	16	e			
7	c	☿ ♒ 3 54	29	26	25	2	17	f			
8	D	♄ ♌ 7 53	0	27	6	♏ 52	18	g	□ ♄ ☾ 2 post		
9	e	Octab. Purif.	1	27	18	50	19	a			
10	f	☿ ♍ 27 40	2	27	1	♐ 1	20	b			
11	g		3	28	13	24	21	c	☉ set 5, 6.		
12	a	Septuagesima	4	28	26	12	22	D	☌ ♄ ☿ 2 p.		
13	b	☿ ♒ 8 20	5	28	9	♍ 22	23	e			
14	c	Valentine	6	29	23	3	24	f			
15	D	♂ ♃ ☿	7	29	7	♒ 10	25	g	♂ ♃ ☿ ☾ ☌ ♄		
16	e	♃ ♒ 4 30	8	29	21	40	26	a			
17	f		9	29	6	♓ 26	27	b	☌ ♄ ☿		
18	g	♄ ♌ 7 13	10	29	21	24	28	c	☾ with ☊		
19	a	☿ ♒ 14 40	11	30	6	♈ 23	Mar. 1	D	☾ perigæo		
20	b	Quinquag. Sund.	12	30	21	18	2	e			
21	c	☿ ♒ 11 10	13	30	6	♉ 0	3	f	Sun set 5 26		
22	D		14	29	20	24	4	g	☌ ♂ ☾		
23	e		15	29	4	♊ 30	5	a			
24	f	Matthias Ap.	16	29	18	8	6	b	☿		
25	g		17	29	1	♋ 30	7	c			
26	a		18	29	14	30	8	D	☌ ♄ ♃ 1 post		
27	b	1 in Lent.	19	29	27	13	9	e			
28	c	♄ ♌ 6 40	20	29	9	♌ 50	10	f	♂ ♄ ☾ 6 ante		

From the first day untill the 9 day indifferent faire and temperate weather for the time of the yeere, then snow about the 11, 14, 16, 17, 18. and so continues now and then till about the 25. then much winde and snow to the last day.

1	11	A	16
2	12		4
3	0	M	48
4	1		8
5	1		48
6	2		28
7	3		4
8	3		52
9	4		32
10	5		16
11	6		8
12	7		4
13	8		0
14	9		0
15	9		56
16	10		52
17	11	A	44
18	0		40
19	1		36
20	2		24
21	3		16
22	4		20
23	5		12
24	6		12
25	7		4
26	8		4
27	8		56
28	9		44

Full Moon, 4 day, 50 min. past 3 morn.
Last quarter, 12 day, 51 min. past 6 morn.
New Moon, 19 day, 39 min. past 2 morn.
First quarter, 25 day, 51 min. past 7 afternoone.

1	D	David B.	21	♓	28	22	♌	3	11	☐ ♂ ☿ 1
2	e	Sun rise 6 15	22		28	4	♍	9	12	
3	f	☾ with ♉	23		28	16		12	13	
4	g	☾ eclipse vis.	24		28	28		9	14	
5	a		25		27	10	♎	0	15	☾ Apog
6	b	2 in Lent.	26		27	21		48	16	
7	c	♄ ☌ 6 22	27		26	3	♏	40	17	
8	d		28		26	15		31	18	☐ ♂ ♀
9	e	♆ ♒ 8 40	29		25	27		33	19	
10	f		0	♈	25	9	♐	44	20	△ ♃ ☉ 6 mor
11	g	Sun rise 5 57	1		24	22		12	21	
12	a	Gregory	2		23	4	♑	52	22	
13	b	3 in Lent.	3		23	17		58	23	
14	c	☿ ♓ 6 58	4		22	1	♒	30	24	
15	d		5		21	15		26	25	
16	e	♂ ♐ 1 22	6		20	29		50	26	△ ☉ ♄ 6 mo
17	f	☾ with ☌	7		20	14	♓	32	27	♂ ☿ ☾
18	g	☿ ♓ 24 53	8		19	29		38	28	
19	a		9		18	14	♈	50	29	☾ perigæo.
20	b	4 in Lent.	10		17	29		57	30	
21	c	Sun rise 5 38	11		16	14	♉	59	31	✶ ☉ ♆ 4 mor
22	d		12		15	29		40	Apr. 1	△ ♂ ☿ 6 mor
23	e		13		13	13	♊	59	2	
24	f	☿ ♓ 19 0	14		12	27		49	3	△ ♄ ☿ 5 mor.
25	g	Annũ. Mar.	15		11	11	♋	15	4	
26	a		16		10	24		13	5	
27	b	5 in Lent.	17		9	6	♌	50	6	
28	c		18		8	19		8	7	
29	d	♆ 12 14 ♒	19		7	1	♍	16	8	
30	e		20		6	13		12	9	
31	f		21		4	25		3	10	♂ ☉ ☿ noone

Day 1, 2. raine like, moist and windy, and so continuing for the most part till about the 11 day, then dry and windy; likely cold raine about the 16 day or 17 some haile, and likely some drooping moist weather to the moneths end.

1	10	A	28
2	11		8
3	11		52
4	12		0
5	0	M	32
6	1		12
7	1		52
8	2		36
9	3		20
10	4		12
11	5		4
12	5		56
13	6		56
14	7		52
15	8		48
16	9		44
17	10		36
18	11		24
19	0	A	20
20	1		12
21	2		4
22	3		4
23	4		4
24	5		8
25	6		4
26	7		0
27	7		48
28	8		32
29	9		16
30	10		0
31	10		40

Full Moon, 2 day, 26 min. past 9 at night.
Last quarter, 10 day, 42 min. past 6 afternoone.
New Moon, 17 day, 54 min. past 10 morning.
First quarter, 24 day, at 9 of the clock in the morning.

1	g	Sun rise 5 16	22	♈	3	6	♎	55	11	c	
2	a		23		1	18		43	12	d	☾ Apog 20
3	b	Palm Sun	24		0	0	♍	34	13	e	△ ♃ ☿
4	c		24		59	12		32	14	f	△ ♂ ☿
5	d		25		57	24		34	15	g	
6	e		26		55	6	♐	44	16	a	
7	f		27		53	19		5	17	b	△ ♄ ☿ □ ♄ ☿
8	g	♄ ☊ 5 7	28		51	1	♑	35	18	c	
9	a		29		50	14		20	19	d	
10	b	Easter day	0	♉	48	27		20	20	e	
11	c	Sun rise 4 57	1		46	10	♒	40	21	f	□ ♃ ☿
12	d	♂ ♐ 2 0	2		45	24		27	22	g	
13	e	☿ ♈ 13 40	3		43	8	♓	33	23	a	
14	f		4		42	23		8	24	b	✶ ♃ ☿ 1 mor
15	g	♃ ♒ 14 33	5		39	8	♈	0	25	c	☾ perig.
16	a		6		37	23		2	26	d	□ ♄ ☉ 6 mor
17	b	Low Sund	7		35	8	♉	15	27	e	
18	c		8		33	23		20	28	f	
19	d	☿ ♉ 28 0	9		31	8	♊	12	29	g	
20	e		10		29	22		38	30	a	
21	f	Sun rise 4 40	11		27	6	♋	39	May	b	☌ ♂ ☿ 5 mor
22	g		12		25	20		8	2	c	
23	a	George	13		23	3	♌	12	3	d	
24	b	2 after Easter	14		21	15		49	4	e	
25	c	Mark Ebg.	15		19	28		5	5	f	✶ ♄ ☿ 8 □ ☉
26	d	Quind. pasch	16		17	10	♍	9	6	g	
27	e	Term begin	17		15	22		0	7	a	
28	f	♄ 6 5 3 ☊	18		13	3	♎	46	8	b	
29	g	♃ ♒ 16 0	19		10	15		30	9	c	☾ Apog.
30	a	♂ ♍ 27 43	20		8	27		25	10	d	

Much windy weather, and ſometimes hail and raine moſt part of the moneth, eſpecially the 4, 6, 7, 8, 10. 11, 12, 13, 15, 16, 17, 18. in the night, and ſo many times and oft to the moneths end.

1	11A	20
2	11	56
3	0M	36
4	0	44
5	1	28
6	2	16
7	3	8
8	4	0
9	4	56
10	5	48
11	6	44
12	7	32
13	8	28
14	9	16
15	10	8
16	11	0
17	11	52
18	0A	52
19	1	56
20	3	0
21	4	4
22	5	0
23	5	5?
24	6	24
25	7	28
26	8	8
27	8	44
28	9	28
29	10	8
30	10	48

Full Moon, 2 day 20 min. past 1 afternoone.
Last quarter, 10 day, 16 min. past 3 in the morning.
New Moon, 16 day, 42 min. past 6 afternoone.
First quarter, 23 day, 13 min. after midnight.

1	F	Philip & Iac	21	♉	6	9	♍	20	11	G	Sun rise 4 24
2	G	Tres Pasc.	22		4	21		27	12	f	□ ♄ ♀
3	A	♀ ♊ 1 3 0	23		1	3	♐	40	13	g	
4	B	♀ ♉ 9 0	23		56	16		4	14	a	
5	c		24		57	28		36	15	b	
6	d	♄ 7 24 ☊	25		54	11	♑	20	16	c	☌ ☉ ♂ 6 mor.
7	e		26		52	24		17	17	d	
8	F	4 after Easter	27		49	7	♒	23	18	e	☌ ♄ ☾
9	G	Mens. Pasch.	28		46	20		42	19	f	□ ♀ ☾
10	A	♃ ♒ 16 40	29		44	4	♓	20	20	g	□ ♃ ♀ noone
11	B		0	♋	42	18		15	21	a	☾ ☊
12	c	♂ ♍ 23 30	1		39	2	♈	30	22	b	
13	d		2		37	17		0	23	c	☾ Perig.
14	e		3		34	1	♉	49	24	d	□ ☾
15	F	Rogation	4		31	16		1	25	e	☌ ♂ ♀
16	G	Quind. Pasch	5		29	1	♊	40	26	f	
17	A	♀ ♊ 13 24	6		26	16		20	27	g	
18	B		7		23	0	♋	48	28	a	
19	c	Ascension.	8		21	14		50	29	b	✶ ♄ ☉ noone
20	d	Crastin. Asce.	9		18	28		24	30	c	
21	e	Sun rise 3 58	10		16	11	☊	31	31	d	☌ ♄ ☾
22	F	6 after East.	11		13	24		12	Iun.	e	☌ ☉ ♀ 5 mor.
23	G	Terme ends	12		10	6	♍	10	2	f	
24	A	♀ ♊ 10 4	13		7	18		32	3	g	
25	B		14		4	0	♎	24	4	a	△ ♀ ☾
26	c		15		2	12		8	5	b	✶ ♄ ♀
27	d	♀ ♊ 7 31	15		59	23		54	6	c	☌ ♀ ♀ ☾ Apo.
28	e		16		56	5	♍	45	7	d	△ ☉ ♃ ✶ ♄ ♀
29	F	Whitsunday	17		53	17		48	8	e	☌ ♂ ☾
30	G		18		51	0	♐	1	9	f	
31	A		19		48	12		25	10	g	☌ ♀ ☾ noone

This moneth of May according to the Aſpects of the Moon and Sun ſhould be temperate, yet windy. But according to the Aſpects of the Moon to the other Planets, and the Planets among themſelves. The 1,2,3,6, 7,8,9. ſhould be raine, ſometimes hail, the 10 temperate, from the 12 to the 16 moiſture, from thence to 23 much wind, inclined to moiſture, & ſo to the months end.

1	11	A	18
2	0	M	16
3	0		40
4	1		6
5	2		0
6	2		52
7	3		48
8	4		48
9	5		32
10	6		24
11	7		12
12	8		4
13	8		48
14	9		44
15	10		36
16	11		28
17	0	A	40
18	1		48
19	2		48
20	3		44
21	4		32
22	5		20
23	6		4
24	6		40
25	7		20
26	7		56
27	8		40
28	9		20
29	10		8
30	10		52
31	11		44

June hath xxx dayes.

Full Moon, 1 day, at 3 in the morning.
Last quar. 8 day, 40 min. past 9 in the morning.
New Moon, 15 day, at 3 in the morning.
First quarter, 22 day, 8 min. past 5 afternoone.
Full Moon, 30 day, 58 min. past 2 afternoon.

1	e	Sun rise 3 50	20	♊	45	25	♐	6	11	a	
2	f	♄ ☌ ☽ 9 40	21		42	8	♑	0	12	b	
3	g	♃ ♒ 16 57	22		39	21		2	13	c	
4	a	♂ ♍ 17 30	23		36	4	♒	16	14	d	△♃ ☿ ☍ ♄ ☾
5	b	Trinity.	24		33	17		39	15	e	☌ ♃ ☾
6	c	Craft. Trin.	25		30	1	♓	9	16	f	
7	d	☿ ♓ 21	26		27	14		50	17	g	
8	e		27		25	28		40	18	a	
9	f	☿ ♋ 8	28		22	12	♈	42	19	b	☾ perig.
10	g	Term begin	29		19	27		2	20	c	
11	a	Sun rise 3 48	0	♋	16	11	♉	22	21	d	
12	b	♄ ☌ ☽ 10 40	1		12	25		50	22	e	
13	c	Octab. Trin.	2		10	0	♊	23	23	f	☌ ☿ ☾
14	d	♃ ♒ 30	3		7	24		49	24	g	☌ ☿ ☾
15	e	♂ ♍ 16 57	4		4	9	♋	0	25	a	☌ direct.
16	f		5		1	22		55	26	b	
17	g	☿ ♋ 3 16 30	5		58	6	☌	24	27	c	☌ ♄ ☾
18	a		6		55	19		30	28	d	☍ ♃ ☾
19	b	2 after Trin.	7		52	2	♍	12	29	e	
20	c	Quind. Trin.	8		50	14		30	30	f	
21	d	Sun rise 3 50	9		47	26		31	July	g	
22	e	♄ ☌ ☽ 11 51	10		44	8	♎	24	2	a	
23	f		11		41	20		10	3	b	☾ Apogæo
24	g	St. John Bap	12		38	1	♏	57	4	c	
25	a		13		35	13		50	5	d	☾ with ♂
26	b	3 after Trin.	14		32	25		52	6	e	
27	c	Tres Trinit.	15		29	8	♐	12	7	f	☌ ☉ ☿
28	d	♃ ♒ 15 23	16		26	20		45	8	g	
29	e	Peter & Paul	17		23	3	♑	40	9	a	
30	f	Terme ends	18		21	16		50	10	b	☍ ☿ ☾

From the first day to the eighth very hot, but the fourth more temperate, the 5, 6, or 7. some raine, then more pleasant and temperate, the 13, 14, and 18, winds and wet, from the 22 to the end much winde, 25, 26, or 27 very hot, or thunder: 30 great heat.

1	11	A	58
2	0	M	48
3	1		44
4	2		40
5	3		32
6	4		24
7	5		4
8	5		52
9	6		36
10	7		24
11	8		20
12	9		16
13	0		16
14	11		20
15	10	A	24
16	1		20
17	2		16
18	3		4
19	3		44
20	4		28
21	5		8
22	5		48
23	6		28
24	7		8
25	7		52
26	8		44
27	9		36
28	10		28
29	11		24
30	0	M	20

July hath xxxi. dayes.

Last quarter, 7 day, 40 min. past 2 afternoon.
New Moon, 14 day, 50 min. past 12 at noone.
First quarter, 22 day, 41 min. past 10 morn.
Full Moon, 30 day, 18 min. past 1 morn.

1	g	Sunrise 3 57	19	♋	18	0	♒	15	11	c	
2	a	♄ ☌ 13 0	20		15	13		50	12	d	☌ ♄ ☾ with ♃
3	♿	4 after Trin.	21		12	27		39	13	e	
4	c		22		9	11	♓	32	14	f	☾ with ♉
5	d	♃ ♒ 14 40	23		6	25		30	15	g	
6	e		24		3	9	♈	31	16	a	
7	f		25		1	23		35	17	b	☾ perigæo.
8	g		25		58	7	♉	35	18	c	
9	a		26		55	21		45	19	d	
10	♿	5 after Trin.	27		52	5	♊	50	20	e	☌ ♄ ♃
11	c	Sunrise 4 8	28		49	19		55	21	f	
12	d	♄ ☌ 14 14	29		47	3	♋	54	22	g	
13	e			♌	44	17		41	23	a	
14	f		1		41	1	♌	15	24	b	☌ ☉ ☿ wi. ♀ ☿
15	g	Swithin.	2		38	14		30	25	c	☾ with ♄
16	a		3		36	27		27	26	d	
17	♿	6 after Tin.	4		33	10	♍	3	27	e	
18	c		5		30	22		20	28	f	
19	d	Dog day be.	6		27	4	♎	25	29	g	☌ ♃ ♀ ☌ ♃ ♀
20	e		7		25	16		19	30	a	☌ ♄ ♀
21	f	Sunrise 4 22	8		22	28		8	31	b	☌ ♄ ♀ ☾ Apo.
22	g	♄ ☌ 15 33	9		20	9	♍	55	Aug	c	
23	a		10		17	21		48	2	d	☾ with ♂
24	♿	7 after Trin.	11		14	3	♐	50	3	e	
25	c	St. James Ap.	12		12	16		11	4	f	☌ ☉ ♃
26	d		13		9	28		50	5	g	
27	e		14		7	11	♑	46	6	a	□ ♂ ♀
28	f		15		4	25		9	7	b	
29	g		16		2	8	♒	50	8	c	☌ ♄ ☉ thun-
30	a		17		0	22		50	9	d	der and hail,
31	♿	8 after Trin.	17		57	7	♓	2	10	e	yet not so hot

The ſecond day, and ſo the 6 or 7 remiſſion of heat, 10 like to be ſtormes of rain or hail, 14 and 15 hy winds and rain, if not, unwholſome weather for mankind, 19 *Apertio portarum*, to thunder winds and hail, 20, 21, 22 winds and ſometimes haſty ſhowers, 23, 25, 27, 29, ſometime thunder, hail and coruſcations.

1	o	M	24
2	1		16
3	2		8
4	2		56
5	3		40
6	4		32
7	5		16
8	6		8
9	7		4
10	8		4
11	9		0
12	10		4
13	11		4
14	11		56
15	o	A	48
16	1		36
17	2		24
18	3		4
19	3		48
20	4		24
21	5		8
22	5		52
23	6		36
24	7		24
25	8		20
26	9		12
27	10		12
28	11		8
29	12	M	0
30	0		52
31	1		40

Auguſt hath xxxi. dayes.

Laſt quarter, 5 day, 42 min. paſt 7 afternoone.
New Moon, 13 day, 10 min. paſt 1 in the morning.
Firſt quarter, 21 day, 57 min. paſt 3 in the morning.
Full Moon, 28 day, 52 min. paſt 10 before noone.

1	c	Sun riſe 4 40	18	♌ 55	21	♊ 23	11	f
2	d		19	52	5	♈ 48	12	g
3	e	□ ♂ ♀	20	50	20	8	13	a ☾ peri. □ ♂ ♀
4	f		21	48	4	♉ 26	14	b □ ♃ ☾
5	g		22	45	18	35	15	c □ ♄ ☾
6	a		23	43	2	♊ 36	16	d ☌ ♂ ☾ & □ ♀
7	b	9 after Trin	24	41	16	26	17	e □ ♀ ☾ 11. beſo
8	c		25	39	0	♋ 8	18	f
9	d		26	37	13	39	19	g
10	e		27	34	27	0	20	a
11	f	Sunriſe 4 58	28	32	10	♌ 9	21	b ☌ ♃ ☾
12	g		29	30	23	2	22	c ♄ with ☾ 3 m.
13	a		0	♍ 28	5	♍ 43	23	d ☍ ♂ ☾
14	b	10 after Trin	1	26	18	12	24	e ♀ with ☾ 5 m.
15	c		2	24	0	♎ 23	25	f ☾ with ♀ 5 m.
16	d		3	22	12	23	26	g
17	e		4	20	24	20	27	a ☾ Apogæo
18	f		5	18	6	♍ 9	28	b □ ♃ ☾
19	g		6	16	18	0	29	c □ ♄ ☾
20	a		7	14	29	52	30	d
21	b	11 after Trin	8	12	11	♐ 56	31	e ♂ with ☾ 10 b.
22	c	Sunriſe 5 17	9	10	24	13	Sep	f □ ♀ ☾
23	d		10	9	6	♑ 46	2	g □ ♀ ☾ ☍ noõ
24	e	Barthol ♃	11	7	19	46	3	a
25	f	♀ elong. max.	12	5	3	♒ 9	4	b ♃ with ☾
36	g		13	3	17	3	5	c ☌ ♄ ☾
27	a	Dogdayes ſet	14	2	1	♓ 9	6	d
28	b		15	0	15	39	7	e □ ♂ ☾
29	c		15	59	0	♈ 23	8	f □ ☉ ♂ ☌ ♀ ☾
30	d		16	57	15	12	9	g ☌ ♀ 9 m.
31	e		17	56	0	♉ 1	10	a ☾ Perigæo

3, mists and showers, 4 windes, yet temperate, 6 hot, likely lightning and haile, 11, 12, temperate, 13 great heat, 14, 15, 18. more temperate, 19 moist, 21 hot, red clouds, 22, 25 temperate, 26 perhaps raine 28, 29 great heat, thunder.

1	2	M	4
2	2		28
3	3		24
4	4		8
5	5		4
6	5		56
7	7		0
8	7		56
9	8		56
10	9		56
11	10		44
12	11		40
13	0	A	20
14	1		4
15	1		44
16	2		24
17	3		4
18	3		48
19	4		32
20	5		20
21	6		24
22	7		4
23	8		4
24	9		0
25	9		52
26	10		48
27	11		36
28	0	M	10
29	0		50
30	1		12
31	2		12

September hath xxx. dayes.

Last quarter, 4 day, 12 min. past 2 morn.
New Moon, 11 day, 16 min. past 4 afternoon.
First quarter, 19 day, 12 min. past 8 at night.
Full Moon, 26 day 2 min. past 8 at night.

1	f	Sun rise 5 38	18	♍	54	14	♉	43	11	b	□ ♄ ☾
2	g		19		53	29		6	12	c	△ ♃ ☿
3	a		20		51	13	♊	15	13	d	☌ ♂ ☾
4	b	13 aft. Trin	21		50	27		5	14	e	
5	c	□ ☿ ☾	22		48	10	♋	35	15	f	□ ☿ ☾
6	d		23		47	23		49	16	g	△ ♄ ♂ midn.
7	e		24		46	6	♌	53	17	a	☌ ♃ ☾
8	f		25		45	19		35	18	b	♄ with ☾
9	g		26		43	2	♍	8	19	c	♂ ☿ ☿
10	a	Sun rise 5 58	27		42	14		30	20	d	
11	b	14 after Trin	28		41	26		43	21	e	
12	c		29		40	8	♎	47	22	f	
13	d	☾ with ☿ 2 m	0	♎	39	20		46	23	g	☾ with ☿
14	e	☾ Apogæo.	1		38	2	♏	40	24	a	
15	f		2		37	14		30	25	b	
16	g		3		36	26		23	26	c	
17	a		4		35	8	♐	20	27	d	
18	b	15 aft. Trin.	5		34	20		22	28	e	
19	c	□ ☾ ☿	6		33	2	♑	38	29	f	♂ with ☾
20	d	Sun rise 6 17	7		32	15		9	30	g	
21	e	St. Matth. A p	8		31	28		0	☉ ☍	a	♂ ☉ ☿ □ ☿ ☾
22	f		9		31	11	♒	18	2	b	☾ with ♃
23	g		10		30	25		2	3	c	☌ ♄ ☾
24	a		11		29	9	♓	12	4	d	
25	b	16 aft. Trin,	12		29	23		50	5	e	☌ ☾ ☿ 15
26	c	□ ♂ ☾ 4 mor.	13		28	8	♈	43	6	f	□ ♃ ☿ 1 mor.
27	d		14		28	23		50	7	g	
28	e	☾ Perigæo.	15		27	9	♉	0	8	a	□ ♃ ☾ ☌ ☿ ☾
29	f	Mich. Arch.	16		27	24		2	9	b	□ ♄ ☾
30	g		17		26	8	♊	53	10	c	

1 and 5 cloudy, 6 winds and raine, 7 more temperate, 8 and 9 close, sometimes changeable, yet windy and so 13, but 19, 21 winds and raine, 22 more temperate, 23 inclined to moisture 28, 29 cloudy and close aire.

1	3	M	4
2	4		0
3	5		0
4	6		4
5	7		4
6	8		0
7	8		52
8	9		40
9	10		24
10	11		8
11	11		52
12	0	A	32
13	1		12
14	1		52
15	2		40
16	3		24
17	4		12
18	5		12
19	6		8
20	6		56
21	7		52
22	8		44
23	9		32
24	10		24
25	11		12
26	12		4
27	0	M	56
28	1		56
29	2		56
30	3		38

Last quarter 3 day, 26 min. past 11 before noone.
New Moon, 11 day, 42 min. past 9 before noone.
First quarter, 19 day, 2 min. past 11 before noone.
Full Moon, 26 day, 30 min. past 5 in the morning.

1	a	Sun rise 6 36	18	♎ 26	23	♏ 12	11	d	
2	b	17 after Trin	19	26	7	♐ 9	12	e	☌ ♂ ☾
3	c		20	25	20	43	13	f	
4	d		21	25	3	♑ 51	14	g	☌ ♃ ☾
5	e	□ ♀ ☾	22	25	16	40	15	a	
6	f		23	25	29	10	16	b	♄ with ☾ 2 m.
7	g		24	24	11	♒ 28	17	c	△ ☉ ♄
8	a		25	24	23	36	18	d	△ ♃ ♀
9	b	18 after Trin.	26	24	5	♎ 36	19	e	♀ with ☾
10	c		27	24	17	33	20	f	□ ♂ ☾ □ ♄ ♀
11	d	Sun rise 6 55	28	24	29	26	21	g	☾ apog.
12	e		29	24	11	♍ 20	22	a	□ ♃ ☾
13	f	♀ with ☾ midn	0	♒ 24	23	15	23	b	△ ♄ ☾
14	g		1	24	5	♐ 12	24	c	
15	a		2	24	17	12	25	d	△ ♂ ♀
16	b	19 after Trin.	3	24	29	20	26	e	
17	c		4	24	11	♑ 36	27	f	
18	d	Luke Evang.	5	24	24	8	28	g	♂ with ☾ 3 m.
19	e		6	24	6	♒ 4	29	a	♃ with ☾
20	f	Tres Mich.	7	24	20	56	30	b	☌ ♄ ☾
21	g	Sun rise 7 14	8	25	3	♓ 7	31	c	□ ♀ ☾
22	a		9	25	17	20	Nov	d	
23	b	20 after Trin	10	25	2	♈ 34	2	e	n.
24	c	Term begin	11	26	16	56	3	f	□ ♂ ☾ midig
25	d	☌ ♀ ☾ 2 aft. n.	12	26	2	♉ 7	4	g	□ ♃ ☾ per
26	e		13	26	17	20	5	a	
27	f	Mens. Mich.	14	27	2	♊ 34	6	b	□ ☾ ♄
28	g	Simo. Jude	15	27	17	35	7	c	☌ ♀ ☾ 11 b.n.
29	a		16	28	2	♋ 12	8	d	□ ♃ ♀
30	b	21 after Trin.	17	28	16	22	9	e	
31	c		18	29	0	♌ 3	10	f	☌ ♂ ☾ 10 m.

Second day close weather, and so 4, and 5, 6, but 7 windy: 8, 9, 10, 12, some raine: 13 cloudy and close, but about 15 or 16 it may be haile, if not thunder: 19 moist, 20, 21, cloudy: 25 and 29 raine, but 27 and 28 cloudy and close.

1	4M	0
2	5	0
3	6	4
4	6	56
5	7	48
6	8	28
7	9	16
8	9	56
9	10	36
10	11	16
11	11	45
12	0	A40
13	1	28
14	2	18
15	3	4
16	4	0
17	4	54
18	5	48
19	6	36
20	7	28
21	8	20
22	9	4
23	10	0
24	10	48
25	11	44
26	0	M40
27	0	M56
28	1	40
29	2	48
30	3	52
31	4	48

November hath xxx. dayes.

Last quarter, 1 day, 43 min. after midnight.
New Moon, 10 day, 15 min. past 4 morning
First quarter, 17 day, 43 min. past 11 at night.
Full Moon, 24 day, 23 min. past 3 afternoon.

1	d	All Saints	19	♍	30	13	♌	16 11	g	
2	e	Omni. anim.	20		30	26		2 12	a	♄ with ☾ 0.
3	f	Craft. anim.	21		31	8	♍	30 13	b	
4	g		22		32	20		40 14	c	△♄☿ □☿☾
5	a	Papist conf	23		33	2	♎	40 15	d	
6	♑	22 after Trin.	24		33	14		33 16	e	
7	c		25		34	26	♍	24 17	f	
8	d	□♂☾	26		35	8		16 18	g	□♄☿☾ Ap.
9	e		27		36	20	♐	11 19	a	♂⊙☿□♄☾
10	f		28		37	2	♐	9 20	b	☿ with ☾ 5.n
11	g	Martin B.	29		38	14		13 21	c	
12	a	Craftin. mar.	0	♑	39	26		23 22	d	
13	♑	23 after Trin	1		40	8	♑	42 23	e	☿ with ☾ 6 m
14	c		2		41	21		9 24	f	
15	d		3		42	3	♒	46 25	g	
16	e	♂ with ☾ 1 m.	4		43	6		34 26	a	♃ with ☾
17	f		5		44	29		40 27	b	☌♃♂☍♄☾
18	g	Octab. marti.	6		45	13	♓	4 28	c	
19	a		7		46	26		51 29	d	
20	♑	24 after trin.	8		47	11	♈	4 30	e	□☿☾
21	c		9		48	25		40 Dec.	f	
22	d	☾ Perigæo.	10		49	10	♉	33 2	g	□♂☾
23	e		11		50	25		40 3	a	□♄☾
24	f		12		51	10	♊	48 4	b	
25	g	Quind. mart.	13		51	25		48 5	c	
26	a		14		53	10	♋	30 6	d	☌☿☾ 22
27	♑	Advent Sund.	15		54	24		45 7	e	
28	c	Terme ends	16		55	8	♌	32 8	f	
29	d		17		56	21		50 9	g	
30	e		18		57	4	♍	43 10	a	

Andrew Ty

1 day fair, 2 cloudy, 4 cold raine, 8, 9, 10, 13, winds and raine or snow, 16 variable, 17 windy and tempestuous weather, 20 cold and dry, 23 cloudy, inclining to snow, 24 and so the moneths end winds.

1	5	M	48
2	6		32
3	7		16
4	8		0
5	8		49
6	9		20
7	9		56
8	10		36
9	11		20
10	0	A	8
11	0		56
12	1		48
13	2		4[illegible]
14	3		32
15	4		24
16	5		16
17	6		0
18	6		48
19	7		36
20	8		24
21	9		20
22	10		12
23	11		16
24	0	M	6
25	0		3[illegible]
26	1		10
27	2		20
28	3		2[illegible]
29	4		8
30	4		56

December hath xxxi. dayes.

Last quarter, 1 day, 56 min. past 5 at night.
New Moon, 9 day, 36 min. past 10 at night.
First quarter, 17 day, 28 min. past 10 before noon.
Full Moon, 24 day, 58 min. past 2 in the morning.
Last quarter 31 day, 57 min. past 5 afternoone.

1	f	Sun rise 8 9	19	♐ 59	17	♍ 10	11	b	□☉☾
2	g		21	0	29	23	12	c	△☿☾ □☿☾
3	a		22	1	11	♎ 21	13	d	△♃☾
4	B	1 aft. Advent	23	2	23	12	14	e	✶♄☾△♂☾
5	c	☾ Apog.	24	3	5	♏ 0	15	f	✶☾♀
6	d		25	4	16	50	16	g	□♃☾ 9 mor.
7	e		26	5	28	49	17	a	6 d. ☌♄☍ 8 n.
8	f		27	6	10	♐ 50	18	b	✶♄☾♂
9	g		28	7	23	6	19	c	△♄☾7
10	a		29	8	5	♑ 30	20	d	
11	b	2 after adven	☌	♑ 10	18	0	21	e	☌☿☾ 10 b.n.
12	c	Sun rise 8 12	1	11	0	♒ 46	22	f	
13	d		2	12	13	40	23	g	
14	e		3	14	26	42	24	a	☌♄☾ 11 b e.n
15	f		4	15	9	♓ 56	25	b	✶☉☾ 1 mor
16	g	☾ ☌	5	16	23	25	26	c	✶☿ 1 aft. no.
17	a		6	17	7	♈ 8	27	d	☌♃☿ 3 mor.
18	B	3 aft. Advent.	7	19	21	6	28	e	△♄☾ 8 nig.
19	c		8	20	5	♉ 22	29	f	✶♂☾ 1 aft.n.
20	d	☾ Perigœo.	9	21	19	55	30	g	□♃☾ 3 mor
21	e	Epi. Xp	10	23	4	♊ 36	31	a	□♂☾ 6 nig.
22	f	Sun rise 8 8	11	24	19	22	Jan.	b	✶♄△☿☾
23	g		12	25	4	♋ 3	2	c	△♂☾
24	a		13	27	18	32	3	d	
25	B	Nat. Christ	14	28	2	♌ 43	4	e	☌☿☾ 10 b.no
26	c	Stephani	15	29	16	30	5	f	☌♃☾ 6 nig.
27	d	Ioan. ☾ ☍	16	30	29	50	6	g	♂♄☾ 5 mor
28	e	Innocents	17	32	12	♍ 48	7	a	☌♂☾ at noon
29	f		8	33	25	20	8	b	△☿☾ midn.
30	g		19	35	7	35	9	c	
31	a		20	37	19	33	10	d	✶♄10 △♃3

Cold frosty begins the moneth, 2, 3, 4, 5. snow like, if not snow or raine, 7 day more warme, yet windy, from 9 till 14 fair, dry and windy, then variable, sometime snow, 17, 18, 19. more temperate, yet windy, 24 raine or snow, afterwards changeable.

1	5	M	40
2	6		20
3	7		0
4	7		40
5	8		44
6	9		8
7	9		52
8	10		44
9	11		32
10	0	A	32
11	1		20
12	2		12
13	3		4
14	3		52
15	4		36
16	5		24
17	6		8
18	6		56
19	7		48
20	8		44
21	9		44
22	10		48
23	11		52
24	12		52
25	0	M	56
26	1		48
27	2		40
28	3		24
29	4		12
30	4		48
31	5		28

The Radices of the motions of the Planets in the Meridians of *Sandwich* and *Dover*. *Anno Dom.* 1653.

	S	d	′	″
Longitude of the first of ♈	0	28	21	8
Mean Longitude of the Sun	9	20	21	32
Apogæon of the Sun	3	6	36	53
Meane Long. of the Moon	2	6	46	26
Aphelion of the Moon	6	5	2	30
Node Ascending	11	25	48	26
Mean Long. of ♄	4	4	37	36
Aphelion. ♄	8	27	9	28
Node Ascending	3	21	3	47
Mean Long. of ♃	9	29	35	55
Aphelion.	6	8	46	21
Node Ascending	3	5	37	14
Mean Long. of ♂	6	0	24	59
Aphelion.	5	0	3	50
Node Ascending	1	17	21	15
Mean Long. of ♀	6	0	56	6
Aphelion.	10	5	9	54
Node Ascending	2	13	30	33
Mean Long. of ☿	0	29	30	35
Aphelion	8	14	18	35
Node Ascending	1	13	47	52

Cœlorum Declaratio.

Being an Appendix to the precedent Ephemeris for 1653.

Of the Eclipſes.

THere will be 4 Eclipſes this year: Two of the Sun, and two of the Moon; but one only, and that is of the Moon, will be viſible to us.

The firſt in order, will bee a ſmall one of the Sun upon the 17 day of February, a quarter of an hour paſt 5 in the afternoon; it will bee viſible in the Southern parts of the Earth.

The other Eclipſe of the Sun (though the third in order) will be upon the 13 of Auguſt, about one of the clock in the morning; it will be conſpicuous in North America, &c.

The laſt Eclipſe is of the Moon, not ſeen of us, upon the 28 of Auguſt, about 11 of the clock before noon, to be ſeen of our Antipodes; In the Eaſt-Indies, China, Mexico, &c. It will be a great Eclipſe where it is ſeen, being eclipſed 18 digits, and the whole duration will be 3 hours, and three quarters of an hour.

That of the Moon which will bee visible to us in the World: of Sandwich, according to the mean time of the true Opposition, will be upon Friday the 4 day of March, 4 minutes and 4 seconds past 4 of the clock in the morning: at which time their motions will be as followeth, according to Harmonicon Cœleste, of the ingenuous and learned Mathematician Mr Vincent Wing.

	s	d	′	″		s	d	′	″
Mid. Long.	11	22	7	43	*Mid. lon.* ☽	5	22	31	54
Apog. subt.	3	6	37	3	*Apog. sub*	6	12	1	24
Anomaly.	8	15	30	40	*Anomaly.*	11	10	30	30
Æquat. add.		1	59	38	*Æqu od*		1	35	37
⊙ *true place*	♓	24	7	21	☾ *place.*	♍	24	7	21

Then,

	d	h.	′	″
Mean time of the opposition. March	3	15	16	18
Intervall add.	0	0	47	46
Mean time of the true ☍ March	3	16	4	4
Æquation of time subt.	0	0	5	17
Remaines the apparent time. March.	3	15	58	7
Anomaly of ⊙ coequated	8	16	29	55
Anom. of ☾ coequated	11	11	21	13

From these Anomalies we have

The Hororary motion of	⊙		2	19
	☾		29	50
	☾ from ⊙		27	21
Horiz. niall Parallax of	⊙		2	21
	☾		55	51

True

	s.	d.	′.	″.
True place of the ☉	♑	24	7	21
True place of the ☾ in her orbite	♍	24	7	21
Motion of ☾ Node sub.	11	22	29	19
Rem. true motion of ☾ latitude	6	21	38	2
Ergo True latit. of ☾ South Desc.	0	0	8	32
Reduction substract				24
Rem. Place of the ☾ in Ecliptick	♍	24	6	57
Reduction 24″ divided by the Horary motion of ☾ from ☉ 27′. 21″. gives a quotient to bee added to the apparent time.	0	0	0	53
Therefore the exact time of the true opposition in the *Meridian* of *Sandwich* and Dover will be	Mar.	3	15.	59 0
Sum of Hor. Par. of ☉ and ☾	0	0	58	12
Semidiameter of ☉ subst.			16	22
rem. The Semidiameter of earths shadow			41	40
Semidiameter of ☾ add			15	37
Sum of the two Semidiameters			57	17
Latitude of ☾ substract			8	32
rem. The parts deficient	0	0	48	45

Here the latitude of the Moon, which is 8 firsts, 32 seconds, being less then the sum of the two Semidiameters, which is 57 firsts, 17 seconds, the Moon will suffer a great Eclipse at this opposition.

	d	′	″
Digits eclipsed	18	43	48
Minutes of Incidence and half continuance together.	0	56	38
Minutes of half continuance.	0	24	36
	h.	′.	″.
Time of Incidence and half continuance.	2	4	16
Time of half contin. in the earths shadow.	0	54	0

	h.	l.	ll.
☾ latitude gives the distance of the ☾ from the greatest obscuration	0	10	45
Devided by the Hor. motion of ☾ from ☉, gives the space of the true ☌ from the greatest obscuration to be substracted from the exact time of the apparent ☌.	0	1	38

	day	h.	l.	ll.
Ergo the greatest obscuration is Mar.	3	15	57	22

Therefore in Meridi. of *Sandwich* and *Dover*

		hor.	′	″
Beginning of the Eclipse.	March 04 day, morning.	1	53	6
Beginning of totall darknesse		3	3	22
The greatest obscuration		3	57	22
True opposition		3	59	0
End of totall darknesse		4	51	22
End of the Eclipse.		6	1	38
The whole continuance in totall darkness,		1	48	0
Totall duration.		4	8	32

When the effects of an Eclipse begin and when they end, I shewed how to finde them in my last years Ephemeris for 1652. And for the same purpose I calculated some Tables for some severall Latitudes; but hearing by a speciall friend of mine they are performed by my good Friend Captain George Wharton, and intended to be now published by him, I have omitted the publishing of them in mine.

Now

Now it might be expected that I should write something concerning the effects of this Eclipse, but seeing it is a question pro & con; some maintaining the effects, others proving the contrary, (Quot homines, tot sententiæ) I content my self with silence in this matter. Yet this is to bee noted, that a Divine in a Sermon preached 28. of March, 1652. though he denies their Effects as in relation to humane affaires, &c. yet hee holds, that at the time of an Eclipse the Seas swell higher then at other times; then what reason should some ignorant people about Sandwich clamour against mee for giving that notice to that Town in my last years Ephemeris, That upon the 29 of March, when the Sunne is eclipsed at the time or thereabouts of the greatest obscuration, it will be high water at Sandwich, and like to be a great Spring-tide. I did not write it would be so, but Like to be so. But had it not been such faire and calm weather, or had the Wind set North-westerly, as it did but 4. or 5 dayes before, it might have stopt the mouths of these clamarous detractors. And what ill advice did I give to the Commissioners of Sewers and Expenditers of the Valleys, To look to the Beaches, and to make all sure, seeing it is palpably known to all thereabouts, how negligently the walls have been kept, that every winter the Causeway hath been so overflown, that people on foot could hardly passe to Towne, and Horsemen rode in the middle of the Causeway sometime not perceiving the brim of the Ditches at either side; when as the keeping of the Sluces in good repair and opened, would clear the Water out of the Causeway into the Town-ditch in lesse

then six hours space sometimes, so that people living very near the Town, would chuse upon the Market day to carry their provision rather to Canterbury then thither; then what wrong and hinderance was this to Sandwich —— But I have digressed too much.

Of the four Quarters of the year.

1. The Spring

Begins when the Sun enters into the first point of Aries, which will be (according to the middle time of the true Ingress) at Sandwich upon the 10. day of March, 16 min 30. seconds past two of the clock in the morning.

At which time the Suns

	sig.	deg.	′	″
Middle Longitude,	11.	27	58	8
Apogæon substract.	3.	6.	37.	3
Rem. Anomaly	8.	21	21	5
Æquation add		2	1	52
True Longitude of ☉	♈	0	0	0

	day	hou.	′	″
Then the middle time March. Morn.	10.	2.	16.	30.
Æquation of time substr.	0	0	4	4
Apparent time. March.	10.	2.	12.	26

2. Summer

2. Summer.

Begins when the Sun enters into the first point of Cancer: which accordingly will be upon the eleventh day of June, 20 minutes and 12 seconds past 5 of the clock in the morning.

At which time the

		s.	d.	′	″
Middle Long of	☉	2.	29.	45.	35.
Apogeon subst.		3	6	37	18
Anomaly remain,		11	23	8	17
Æquation add				14	25
Suns true place		♋	0	0	0

	day	hor.	′	″
Mean time of the true Ingress, Jun. mor.	11.	5.	20.	12.
Equation of time	0	0	0	26.
Remains apparent time, mor. Jun.	11.	5.	19.	46

3. Autumn.

Begins when the Sun enters Libra, which will accordingly be upon the 22 day of September, 12. min 51. seconds past 8 of the clock in the afternoon or night, to which if we add the equation of time. 4′ 4″ the sum is Septemb. 12 16. min. 55 seconds past 8 at night.

4. Winter.

4. WINTER.

BEgins when the Sun enters Capricorn, which will be upon the 11 day of December, 45 min. 31 seconds past 7 of the clock in the morning, to which adde the Equation of time 26 ′. The apparent time will be December. 11. 45 min: 57 seconds, past 7 at night.

Thus have I done with the Eclipses, and the Suns entrance into the four Cardinall points

Now I shall (as briefly as I can) give an answer to certain Queries or Demands sent to me in a Letter out of Hartfordshire from a worthy Divine and Learned friend of mine.

1. Quære or Demand.

What Longitude and Latitude doe you judge Geldesdon in Hartfordshire to bee of, it being 22 miles from London, at the very edge of Essex, and distant from Ware 5 miles, on the Westside of us at Geldesdon?

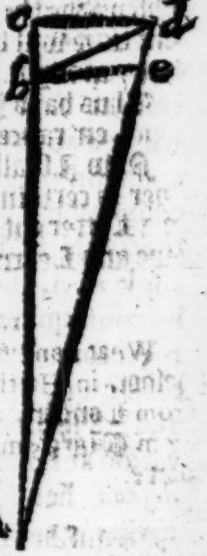
Answer.

For answer to this, I finde in the Mapp, that Ware lyes right North from London, and in a strait line from London 20 miles, and so it hath been accounted. Now in such a small distance as this, we may work it by the doctrine of plain Triangles very well, and not Spherically. I shall first demonstrate it Geometrically, then work it Arithmetically; though not in the common beaten way laid down in our common English bookes, which treat of plain Triangles: Yet I shall be plain (as may be) to a vulgar capacity.

1 Geo-

1. Geometrically.

In this oblique Triangle, A b d. let A repre-
sent London; b Ware, lying right
North from London 20. miles;
and d Geldeſdon; the diſtance
from A to d 22, and from d to b
5 miles; then is A c the line of
the alteration of the pole between
London and Geldeſdon, and the
line c d the line of ſeparation, or
diſtance of Meridians between
London and Geldeſdon, or the
line of ſeparation from the firſt
Meridian. Then to find A c, and
c d. thus,



2. Arithmetically.

We muſt finde the line A e, the
line b e falling perpendicularly
upon the line A d.

By Euclide, lib. 2. p. 13 or Ra-
mus lib. 13. prop. 5. conſ. 1.

In the triangle b d A, the ſides b d 5. A b 20.
and A d 22. and d b the baſe of the acute angle at
A. whoſe quadrate is 25 the quadrate of the ſide
A b 400. and of the ſide A d 484. This added to
400, makes 884. from which take the Quadrate
of d b 25. remains 859. whoſe one half is 429.
$\frac{1}{2}$. divided by A d the baſe 22. the quotient
will bee 19 $\frac{33}{44}$, which fraction $\frac{33}{44}$ in Decimals
will be 19 $\frac{1000000}{522727}$ the line A e.

Then

Then to find the line Ac which is the line of alteration, or difference of latitude between *London* and *Geldeſdon*. Take Euclides rule lib. 6. or Ramus lib. 7. prop. 9. *Si duo triangula ſunt æqui angula, ſunt proportionalia cruribus, & contra.* If two triangles be equianguled, they be proportionall in their ſides, and ſo on the contrary: As in the two triangles A e b right angled at e and A c b right angled at C. A is the common angle to both; for the angle at b is the complement of the angle at A to 90 degrees, and the angle at d is likewiſe the complement of the angle at A, therefore they be equiangled, and by conſequent proportionall in their ſides, And therefore as A b 20 is to A e 19 $\frac{21}{44}$ ſo is A d 22 to A c 21 $\frac{4749997}{10000000}$ that is 21 miles or minutes and 28 ſeconds which added to the poles elevation at London 51 deg. 32 firſts (becauſe *Geldeſdon* lies ſo much Northward of London) makes 51 degrees, 53 firſts, 28 ſeconds, the elevation of the Pole at *Geldeſdon*; Then *Ware* lyes more Northward of *London* in the ſame line, 20 minutes or miles, then the elevation of the Pole at Ware is 51 degrees, 52 firſts.

Or thus, to work it more quick and eaſie by the Logarithmes.

For

For the Line A e.

			co: ar:
As the base A d	22.	log:	86575773
Is to r.			
So is the half	4 29 r.		26329631
To the side A e	19 53/100		12905404

Then for the line A c.

			co: ar:
As A b	20	log:	86989700
Is to A e	19 53/100		12905404
So is A d	22		13424227
To A c	21 47/100, &c.		13319331 As before was wrought.

Then for the line c d. which is the line of separation, or distance of Meridians between London and Geldesdon.

I work thus:

Side A c	21 47	
Hypothen. A d	22	
	log:	
summe	43. 47	16381896
Difference	00 53	17242758
summe		13624654
the half summe		06812327

Which Logarithme gives 4 799. the side c d.

Other

Otherwise thus; then there is a small difference.

For the Line c d.

The line d b.	5	
The line A c.	21 47	from which subtract
the line A b.	20 0	Remaines the
line b c.	1 47.	

Then b d	5	
The line b c	1 47	
Sum	6 47	log: 08109042
Difference	3 53	05477747
Sum		13586789
Half sum		06793394

which is the Logarithme of $4\frac{768}{1000}$ the line c d. the line of separation from the first Meridian, or the distance of Meridians between London and Geldesdon.

Then for the difference of Longitude between those two places I work thus:

London latitude is known to be 51 degrees, 32 firsts; and Geldesdon before found to be 51 deg: 53 firsts: therefore I say;

	First,	co. ar.
As the cosine of Lond: lat'	51 32	sc. 02061683
Is to the Meridian distance	$4\frac{720}{1000}$	c6812327
So is Radius		08874010
To a first number	$7\frac{716}{1000}$	se-

secondly, co. ar.

As the cosine of Geldest: 51 19 sc. 0209285
is to the Meridian distance, 4 1/10 06812337

so Radius 08907612

To a second number $7\frac{776}{1000}$
Added to the first number, $7\frac{716}{1000}$

Sum is $15\frac{492}{1000}$ the half which
is the number of $7\frac{746}{1000}$ which is the difference of Longitude in the Equator: Which 746 multiplyed by 60 firsts, the product will be 0d 7'. 44''. 45'''. 36 ''''. But if you will have the difference of Meridians, you must reduce it into Time: 15 degrees in the Equator make one hour of time; and 15 minutes make one minute of an houre: Then according to this proportion 0d: 7': 44'': 45''': 36 '''': in the Equator; make 0 houre, 0 minute, 30 seconds, 59 thirds, &c. That is half a minute of an hour in Time, and somewhat more; the difference of the Meridians between London and Geldestone; and so much the Sun comes to the Meridian or South sooner at London then at Geldestone; that is to say, when it is twelve of the clock at London, it wants half a minute of twelve at Geldestone, &c.

I know this way I have set down here to find the difference of Longitude between two places, having both Latitudes and Meridian distance

distance given, will sound harsh and untruth in the eares of some, but it is a true way, and easier then to find first the middle latitude between the two places; as wilbe manifest, if any please to try that way.

2 Quære or demand.

How truely to calculate the Sunne rising &c. at Geldesdon in Hartfordshire?

Answer.

I have shewed this for any latitude in my Ephemeris for 1651. But yet having the true motion of the Sunn or place of the sun in the Ecliptick. Say,

First As Radius to the sine of the Suns place in the Ecliptick. So is the sine of the greatest declination of the sunn, 23deg 31. firsts 30 sec. to the sine of the sunns declination.

Then secondly As Radius to the tangent of the sunns declination. or of the arch last found. So is the tangent of the poles elevation at Geldesdon in Hartfordshire which is 51deg. 53' to the sine of the difference of Ascension which convert into houres, and if the sunn be in the northern signes substract it from 6houres if in the southern add it to 6 houres, and you have the time of sunn rising.

3 Quære.

Whether it be not a true rule that after the vernall Equinoctiall the sunn doth not rise sooner

nor and set later at London and so with us here in Gotesdon then with you at Sandwich, and after the Autumn Equinox or September 14. it doth not rise later and set sooner &c.

Answer.

It doth so, as I could easily shew by demonstration if I had had paper enough to lay it down; for if the sun be in the Northern signes the lesser the pole is elevated the arch of the difference of Ascension is lesse counting from the hour of six, then then it is in the greater elevation, the and so consequently the sun then comes sooner to the Horizon at his rising in the greater elevation, then in the lesser &c.

4 Quære.

How comes it to pass that your Calculation for the sunnes rise for Sandwich is sometimes before and sometimes after London, differing so much from Mr Booker, Mr Lilly, Mr Jesse and others for London?

Answer.

The pole elevation at Sandwich is lesse then that at London, and therefore the answer to the 3 quere before answeres this.

5 Quære.

How may I exactly know the North poles distance from the pole starre?

Answer.

Take the complement of the declination of the

the pole ſtarr or of any other ſtar neer the pole, & that is the diſtance, as if the declination of any ſtarre about the pole be 87 deg. 40 firſts the complement of that to 90 deg. that is 2 deg. 20 firſts, is the diſtance.

I cannot enlarge my ſelfe as I would and intended to have done. I had prepared ſome Aſtronomicall propoſitions not uſuall, but I cannot now inſert them

Hodiè pauca, cras plura ſi venia & vita ſinat.

Now Courteous Reader.

——— *Quod nôſti meliora* ———.

Candidus imparti, Si non his utere mecum.

If you know how to mend what I have written curteouſly impart it, if not, accept of my labours which are not ſmall, and uſe them for thine own benefit, and I ſhall remain

Yours to further you in the Mathematicks.

HENRY HARFLETE.

BRITISH MUSEUM 19 82 APR

FINIS.

There is lately printed *Pueriles Confabulat:* and *Corderii Colloquia* in Latin and Engliſh; By the help whereof young Scholars may eaſily attain to the ſpeaking of good Latine: By *Ch: Hoole*, Schoolmaſter in *London*.